

## **AMENDMENTS TO THE CLAIMS**

The following listing of claims will replace all prior versions and listings of claims in the application.

### **LISTING OF CLAIMS**

1. (CURRENTLY AMENDED) A magnetic circuit for a rotating apparatus having a parallel structure or a skew structure of magnet pole pieces of magnets or armatures with respect to a shaft, comprising:

a rotating shaft;

a plurality of supporters fixedly mounted in a perpendicular direction to the circumference of the rotating shaft;

a rotor having a plurality of magnets rotated by attraction force and repulsion force of a magnetic field, each magnet having a magnet pole piece being arranged in parallel with respect to the shaft and located on an end of one of the plurality of supporters; and

a plurality of armatures (stators) each having a coil and opposing pole faces, each coil being mounted at an interval outside the rotors and receiving induced magnetic flux of the rotors, and said ~~magnet pole pieces~~ coil pole faces being arranged ~~in parallel or~~ in skew with the rotating shaft

3. (CURRENTLY AMENDED) The magnetic circuit for a rotating apparatus as claimed in claim 1, wherein the armatures ~~have the parallel structure or the skew~~

~~structure of magnet pole pieces of magnets or armatures with respect to the shaft, and the magnets or armatures are C-shaped.~~

5. (CURRENTLY AMENDED) The magnetic circuit for a rotating apparatus of claim 4 ~~3~~ wherein the magnet pole pieces of the magnet ~~or the armatures having the parallel structure or the skew structure~~ are parallel with respect to the shaft and the rotors being rotated by a force of a magnetic field formed in the parallel direction with the rotating shaft and thus minimizing the lateral vibration of the shaft under rotation.

7. (PREVIOUSLY AMENDED) An electrical apparatus comprising:  
a shaft having an axial direction and a radial direction;  
a plurality of supports extending radially from the shaft;  
ends of each support having a pair of magnets mounted thereto, each pair containing magnets of opposite polarity, each magnet having pole faces extending parallel to the axial direction of the shaft;  
a plurality of arcuate stators surrounding the shaft, each stator having a leg with a coil attached thereto and ends that mutually face each other to define a gap through which the pairs of magnets rotate; and  
adjacent magnet pairs having magnetic polarities which are reversed with respect to each other.

8. (NEW) A magnetic circuit for a rotating apparatus having a parallel structure of magnet pole pieces of magnets or armatures with respect to a shaft, comprising:  
a rotating shaft;  
a plurality of supporters fixedly mounted in a perpendicular direction to the circumference of the rotating shaft;

a rotor having a plurality of magnets rotated by attraction force and repulsion force of a magnetic field, each magnet having a magnet pole piece being arranged in parallel with respect to the shaft and located on an end of one of the plurality of supporters; and

a plurality of armatures (stators) each having a coil, each coil being mounted at an interval outside the rotors and receiving induced magnetic flux of the rotors, and said magnet pole pieces being arranged in parallel with the rotating shaft;

wherein said armatures are C-shaped to minimize the lateral vibration of the shaft under rotation.

## **REMARKS**

### **Interview Summary**

Applicant would like to thank Examiner Le for the courtesies extended to his undersigned representative during a telephonic interview on September 3, 2003. During the interview the Examiner indicated that an amendment to claim 1 along the lines presented herein might receive favorable reconsideration subject to a further search or consideration. Applicant also presented arguments in favor of patentability for independent claim 7 and newly added independent claim 8 as essentially set forth below, although no agreement was reached. Favorable reconsideration of this application is respectfully requested for one or more of the following reasons.

### **Rejections**

The pending claims all contain limitations not disclosed in Richter '801. For example, Claim 1 calls for the skewed coils. Claim 7 calls for the parallel and alternately reversed polarity of the rotor magnets and Claim 8 calls for a C-shaped armature. Therefore, the section 102 rejection should be moot.

Applicant also respectfully submits that the Examiner has failed to establish a *prima facie* case of obviousness as required by *Graham v. John Deere Co.*, 148 USPQ 459 (1966) and MPEP § 2141. Specifically, the following tenets of patent law must be adhered to:

- (A) The claimed invention must be considered as a whole;

(B) *The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination;*

(C) *The references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention; and*

(D) Reasonable expectation of success is the standard with which obviousness is determined. MPEP § 2141.01

"In determining the differences between the prior art and the claims, the question under 35 USC § 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would of been obvious." MPEP § 2141.02 (emphasis in original); *Stratoflex, Inc. v. Aeroquip Corp.*, 218 USPQ 871 (Fed. Cir. 1983). Moreover, "[d]istilling an invention down to the 'gist' or 'thrust' of an invention disregards the requirement of analyzing the subject matter 'as a whole.'" MPEP § 2141.02; *W.L. Gore & Assocs. Inc. v. Garlock, Inc.*, 220 USPQ 303 (Fed. Cir. 1983).

Therefore, the Examiner must, without the benefit of hindsight, prove that the references suggest the desirability of changing the structure and mode of operation of the references in order to arrive at Applicant's invention. It is submitted that the Examiner has not met this burden of proof. There is no suggestion or motivation in Devol '901 or Morrill to exchange the bits and pieces of their respective motors. For example, the rotor of Morrill fails to disclose any stator at all. In addition, the rotor of Morrill includes short circuited windings 25 which surround the permanent magnets. In addition, Devol's motor is for a delicate timepiece while Morrill is for dynamoelectric machines. Therefore, it is unlikely that the rotor of Morrill could be used with success for Devol's intended purpose.

In addition, none of the references disclose Applicant's preferred supporters as shown, for example, in Figure 3 of Applicant's specification. These supporters are cylinders which hold pairs of permanent magnets so that their **opposite pole faces are parallel** to the shaft 23. The **pairs of magnets on adjacent supporters are reversed**. Claim 7, for example, recites that "ends of each support having a pair of magnets mounted thereto" with each pair containing magnets of "opposite polarity" in which the "pole faces" extend "**parallel to the axial direction of the shaft**". Claim 7 goes on to recite that "**adjacent magnet pairs having magnetic polarities which are reversed with respect to each other**".

By way of his motor construction Applicant's machine generates a rectangular waveform in a manner which is not disclosed or suggested by the references. It is submitted that the Examiner is using a hindsight approach in order to piece together the various components of the references in order to support his burden of proof. The references do not suggest the desirability or provide the motivation to rebuild the various references in the manner suggested by the Examiner. Thus, the Examiner has failed to meet his burden to provide a *prima facie* case of obviousness.

For the reasons set forth above, it is believed that this application is now in condition for allowance and such action is respectfully requested. In the event that the Examiner believes that personal contact would be advantageous to the disposition of

this case, he is requested to call the undersigned at his earliest convenience.

Respectfully submitted,

Dated: \_\_\_\_\_

Sept 8, 2003

HARNESS, DICKEY & PIERCE, P.L.C.  
P.O. Box 828  
Bloomfield Hills, Michigan 48303  
(248) 641-1600

By: \_\_\_\_\_

G. Gregory Schivley  
G. Gregory Schivley  
Reg. No. 27,382